

Remarks

Claims 1, 36-60 and 64 are pending and rejected in the instant application. Claim 1 has been amended to recite an apparatus for performing biological reactions comprising, among other components, a first port which extends through a flexible layer. Support for the amended claim is found at least on page 15, lines 16-17 and in Fig. 1. Additional support for amended claim 1 can be found throughout the originally filed specification and claims of the specification.

Election/Restriction

Applicant recognizes the Examiner's acknowledgement of election without traverse of Group I, characterized as drawn to an apparatus with probe array.

Drawings

Replacement FIG. 10B is enclosed clearly showing the scanner element 36. Applicants note that the scanner element 36 was indicated on the drawings as originally filed as part of carriage element 50; see also page 26, line 23 through page 27, line 2 describing the relationship of the scanner to the roller.

Double Patenting

Claims 1, 36-60 and 64 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over allowed claims 33, 34, and 38-47 of Application No. 09/464,490.

Without admitting the necessity of a Terminal Disclaimer, Applicant will delay consideration of the filing of a terminal disclaimer until notification that the remaining grounds of rejection are withdrawn.

Claims 1, 36-60 and 64 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over allowed claims 1-6, 9 and 10 of Application No. 09/492,013.

Without admitting the necessity of a Terminal Disclaimer, Applicant will postpone consideration of the filing of a terminal disclaimer until notification that the remaining grounds of rejection are withdrawn.

Rejection under 35 U.S.C. § 102(b)

Claim 1 (and claims 36, 37, 40, 45, 47, 49 and 57 which depend therefrom) stand rejected under 35 U.S.C. § 102(b) as being anticipated by Cottingham et al. (WO 97/10056) (Cottingham).

Cottingham discloses a device comprising a substrate (*i.e.*, the DNA card) comprising sample cells. Each sample cell comprises a chamber, an open port, and air vent.

The DNA card disclosed is comprised of three layers of plastic film (see *e.g.*, p. 13; Fig. 8). The top layer contains holes which form sample ports and air vents (see *e.g.*, p. 15; Figs. 5 and 8). The lower surface of the top layer forms the upper wall of the sample chamber (see *e.g.*, Fig. 4). The middle layer of the device contains keyhole-shaped apertures that form the sample chamber side walls (see. *e.g.*, p. 15; Figs. 6 and 8). The bottom layer is a solid rectangular sheet (see. *e.g.*, Fig. 8) that forms the bottom of the DNA card. The upper surface of the bottom layer forms the lower wall of each of the sample chambers (see. *e.g.*, Fig. 4). The sample chambers are sealed using a sealing strip with individual seals that adhere to the upper surface of the top layer (see *e.g.*, p. 13). The sealing strips may be made from cellulose acetate butyrate, triacetate cellulose, or a transparent light-polarizing film (see. *e.g.*, pp. 16-17). The sample ports disclosed in Cottingham provide the means by which liquid biological samples are admitted into the sample chambers for contacting reagents adhered to the sample chamber interior (see *e.g.*, page 5). As shown in Figs. 4 and 8, the sample ports communicate only with the top layer of the device.

The present invention teaches an apparatus for performing biological reactions comprising a substrate comprising a first and second surface, an array of biomolecular probes positioned on the first surface; and a flexible layer affixed to the first surface by an adhesive layer, forming a reaction volume; and at least a first port into the reaction volume, wherein the first port extends through the flexible layer. In contrast to the open port taught by Cottingham, the present invention teaches an input port into a reaction volume which extends through a flexible layer for providing a first opening within the area bounded by the

adhesive layer and first substrate surface (see e.g., page 15, lines 16-17 of the specification and Fig. 1).

An anticipation rejection requires that a single reference expressly or inherently disclose each and every element of a claim. *In re Paulsen*, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994); MPEP § 2131 (citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).

As discussed above, Cottingham does not teach or disclose a port into a reaction volume which extends through a flexible layer. Applicants accordingly respectfully request that the 35 U.S.C. §102(b) rejection of claim 1 (and claims 36, 37, 40, 45, 47, 49 and 57 which depend therefrom) be withdrawn.

Rejection under 35 U.S.C. § 103(a)

Claims 43-44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cottingham in view of Rehman et al. (NAR vol. 27, No.2 pp. 649-655) (Rehman).

Cottingham is discussed above.

Rehman is directed to the attachment of oligonucleotides having 5'-terminal acrylamide modifications to supports which contain exposed acrylic groups (see e.g., abstract). The reference does not disclose an input port extending through a flexible layer for providing a first opening within an area bounded by an adhesive layer and first substrate.

The present invention is summarized above.

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) M.P.E.P. §2143.

None of the references, taken alone or in combination, disclose each of the claimed elements of the invention. There is no teaching in Cottingham or Rehman of a port extending through a flexible layer. Therefore, the requirement of teaching or suggesting all of the claim elements has not been met.

Claims 48, 50-56 and 60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cottingham in view of Bjornson et al. (WO 99/19717) (Bjornson).

Cottingham is discussed above.

Bjornson teaches a variety of flexible films for sealing. The reference does not disclose an input port extending through a flexible layer for providing a first opening within an area bounded by an adhesive layer and first substrate surface.

The present invention is summarized above.

None of the references, taken alone or in combination, disclose each of the claimed elements of the invention. There is no teaching in Cottingham or Bjornson of a port that extends through a flexible layer. Therefore, the requirement of teaching or suggesting all of the claim elements has not been met.

Claims 39, 41, 42, 46, 58 and 59 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cottingham in view of Besemer et al. (U.S. Patent No. 5,945,337) (Besemer).

Cottingham is discussed above.

Besemer teaches an apparatus and methods for packaging a chip. The reference does not disclose an input port extending through a flexible layer for providing a first opening within an area bounded by an adhesive layer and first substrate surface.

The present invention is summarized above.

None of the references, taken alone or in combination, disclose each of the claimed elements of the invention. There is no teaching in Cottingham or Besemer of an inlet port that extends through a flexible layer. Therefore, the requirement of teaching or suggesting all of the claim elements has not been met.

Claim 64 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cottingham in view of Besemer in further view of Van Antwerp et al. (U.S. Patent No. 5,786,439) (Van Antwerp).

Cottinham is discussed above.

Besemer is discussed above.

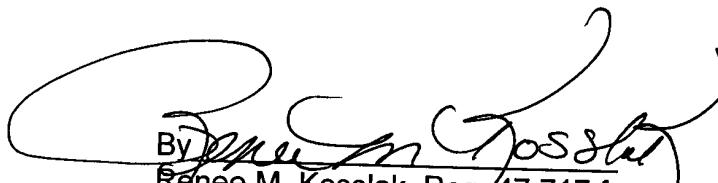
Van Antwerp teaches coating a biosensor with a water *insoluble* hydrogel matrix. The reference does not disclose an input port extending through a flexible layer for providing a first opening within an area bounded by an adhesive layer and first substrate surface.

The present invention is summarized above.

None of the references, taken alone or in combination, disclose each of the claimed elements of the invention. There is not teaching in Cotttingham, Besemer, or Van Antwerp of an inlet port that extends through a flexible layer. Therefore, the requirement of teaching or suggesting all of the claim elements has not been met.

The Examiner is invited to contact the undersigned at (415) 781-1989 for discussion of any outstanding issues.

Respectfully submitted,
DORSEY & WHITNEY LLP

By 
Renee M. Kossak, Reg. No. 47,717 for
Robin M. Silva, Reg. No. 38,304
Attorneys for Applicants
Filed under 37 C.F.R. §1.34(a)

Four Embarcadero Center - Suite 3400
San Francisco, California 94111-4187
Tel.: (415) 781-1989
Fax: (415) 398-3249
SF-1110304